

CLAIMS

1. A hybrid telecommunications switch comprising:
- at least one circuit switch fabric;
 - at least one packet switch fabric; and
 - a controller configured to separate telecommunications traffic received at the switch and to direct traffic to either a circuit or a packet switch fabric, the controller mapping Internet Protocol (IP) traffic into ATM service categories and directing IP traffic corresponding to at least one ATM service category to a circuit switch fabric.
2. The switch of claim 1 wherein a portion of the circuit switch resources are provisioned for circuit traffic and the remaining portion of the circuit switch resources are allocated to IP traffic as the controller routes the IP traffic to the circuit switch.
3. The switch of claim 2 wherein the controller is configured to employ a connection admission control algorithm to allocate circuit switch resources to traffic falling within an ATM service category.
4. The switch of claim 3 wherein the controller is configured to route IP traffic mapped into constant bit rate (CBR) ATM service category traffic to a circuit switch.
5. The switch of claim 3 wherein the controller is configured to route IP traffic that has been mapped into the real time variable bit rate (rt-VBR) ATM traffic service category to a circuit switch.
6. The switch of claim 3 wherein the controller is configured to route IP traffic that has been mapped into an ATM traffic service category which is neither CBR nor rt-VBR traffic to an IP switch.

7. The switch of claim 3 wherein the controller is configured to allocate available circuit switch resources, as indicated by a resource table, to received IP traffic requests.
8. The switch of claim 7 wherein the controller is configured to maintain circuit switch ingress and egress resource tables.
9. The switch of claim 7 wherein the controller is configured to pass an IP traffic request to a destination node and to establish an IP traffic path after having determined that all nodes along the proposed traffic path have accepted an IP traffic request.
10. The switch of claim 9 wherein the controller is configured to determine whether IP traffic that has been mapped into the rt-VBR ATM service category is to be switched through an circuit switch.
11. The switch of claim 10 wherein the controller is configured to determine whether IP traffic that has been mapped into the rt-VBR ATM service category is to be switched through a circuit switch based upon the traffic's peak to sustained packet rate ratio.
- ✓ 12. A method for switching telecommunications traffic in a hybrid telecommunications switch comprising at least one packet switch fabric, at least one circuit switch fabric, and a controller, including the steps of:
- (A) the controller separating telecommunications traffic received at the switch,
 - (B) the controller mapping IP traffic into ATM service categories, and
 - (C) the controller directing traffic to either a packet or a circuit switch fabric, with IP traffic that has been mapped into at least one ATM service category being directed to ^{the at least one} an circuit switch fabric.

- 112(2) lack of antecedent
13. The method of claim 12 further comprising the step of:
(D) provisioning a portion of the circuit switch resources for circuit traffic, and
(E) allocating the remaining portion of the circuit switch resources to IP traffic as the controller routes the IP traffic to the circuit switch.
14. The method of claim 13 wherein the allocation of step (E) comprising the step of:
(E1) the controller employing a connection admission control algorithm to allocate circuit switch resources to IP traffic.
15. The method of claim 13 wherein step (C) comprises the step of:
(C1) the controller routing IP traffic that has been mapped into the CBR ATM service category to an circuit switch.
16. The method of claim 13 wherein step (C) comprises the step of:
(C2) the controller routing IP traffic that has been mapped into the rt-VBR ATM service category to an circuit switch.
17. The method of claim 13 wherein step (C) comprises the step of:
(C3) the controller routing IP traffic that has been mapped into neither CBR nor rt-VBR ATM service categories to an IP switch. *not shown*
18. The method of claim 13 wherein the allocating of step (E) comprises the step of:
(E2) the controller allocating available circuit switch resources, as indicated by a resource table, to IP traffic requests.
19. The method of claim 13 further comprising the step of:
(F) the controller maintaining circuit switch ingress and egress resource tables.
20. The method of claim 13 further comprising the step of:

(G)the controller passing an IP traffic request to a destination node.

21. The method of claim 20 further comprising the step of:

(H)the controller determining that all nodes along the proposed IP traffic path have allocated circuit switch resources for the IP traffic.

22. The method of claim 21 further comprising the step of:

(I) establishing an IP traffic path after the determination of step (H).

23. The method of claim 21 further comprising the step of:

(J) the controller determining whether IP traffic mapped into the rt-VBR ATM service category is to be switched through an IP switch fabric or a circuit switch fabric.

24. The method of claim 23 wherein step (J) comprises the step of:

(J1) the controller comparing the traffic's peak to sustained packet ratio to a threshold value.

25. The switch of claim 9 wherein the controller is configured to pass an IP traffic request to a destination node.

26. The switch of claim 9 wherein the controller is configured to determine that all nodes along a proposed IP traffic path allocate circuit switch resources for IP traffic.

27. The switch of claim 26 wherein the controller is configured to establish an IP traffic path after determining that all nodes along a proposed IP traffic path allocate circuit switch resources for IP traffic.